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# FEEDING PREFERENCE OF PENNED WHITE-TAILED DEER FOR HYBRID POPLAR CLONES

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ABSTRACT.— Five hybrid poplar clones were presented to 16 penned white-tailed deer on a feeding board over a 3-day period in September, 1978. A definite order of preference was observed over a 3-hour period for each of 3 trials. Over a longer period (8-24 hours), all 5 clones were completely consumed.

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Knowing how palatable hybrid poplar clones are to white-tailed deer (*Odocoileus virgineanus*) is important if plantations of these clones are to be established. Certain genotypes may be preferred over others even though gross physical characteristics are very similar[1]. The objective of this study was to determine feeding preference by white-tailed deer for various hybrid poplar clones that are being used in intensive culture studies at the Forestry Sciences Laboratory in Rhinelander, Wisconsin.

[1]*Dimock, E. J., II, R. R. Silen, and E. V. Allen. 1976. Resistance in Douglas-fir to damage by snowshoe hare and black-tailed deer. For. Sci. 22:106-121.*

## MATERIALS AND METHODS

Five hybrid poplar clones were presented to 16 penned white-tailed deer on a feeding board over a 3-day period in September 1978.

Leafy twigs of the 5 clones were harvested from experimental plots at the Forestry Sciences Laboratory on September 12, 1978 (table 1). The twigs were placed in plastic bags, packed with crushed ice in styrofoam containers and delivered for testing to Ashland, Wisconsin. All the vegetation, even that used 3 days after delivery, appeared to be in good condition. The careful packing preserved the color and turgor of the leaves.

In preparation for the feeding trials, each twig was trimmed to 12 inches with 10 leaves left on each twig. In each feeding trial, 10 twigs of each clone were tied together in a bundle and secured to a feeding board 10 feet long and 4 inches wide. The feeding board was attached to 2 trees so that the tops of the clone bundles were 4 feet from the ground. Clonal order on the board was randomized.

The number of leaves in each bundle was counted at half-hour intervals for 3 hours, and again after the material had been in the deer yard at least 8 hours. Three separate feeding trials were run.

Table 1.—*Parentage of clones used in September, 1978 penned deer studies*

| Clone number | Clone and/or parentage | Received from—and number |
|---|---|---|
| 5260 | P. 'Tristis #1', (P. tristis × P. balsamifera) | Indian Head, Sask. |
| 5262 | P. cv. Candicans × P. cv. Berolinensis | Upper Darby, PA. NE-385 |
| 5272 | P. nigra × P. laurifolia | Upper Darby, PA. NE-1 |
| 5325 | P. × euramericana cv. Ostia | Maple, Ontario DN-28 |
| 5332 | P. cv. Betulifolia × P. trichocarpa | Upper Darby, PA. NE-98 |

The penned deer are normally fed by park personnel in the early afternoon. Food consists primarily of hay and grain. In addition, residents of the area often visit the deer yard and bring bread, apples and other foods.

## RESULTS AND DISCUSSION

The time of presenting the clones to the animals influenced how quickly the vegetation was consumed. The deer appeared most interested in the poplars when hay and grain were not available. However, time of presentation had no apparent effect on clonal preference.

In trial #1 (table 2), the deer had not been fed by park personnel for almost 24 hours, but evidence of other feeding was prominent. The clones were immediately investigated by several animals and some browsing took place on all five clones. Three animals (two does and a buck) browsed on clones 5325 and 5272. They repeatedly wandered away but returned each time to the same two clones. The remaining animals (13) showed little interest in the material after their initial examination.

The other two trials showed that the same clones were preferred but the time required to consume all leaves was different (table 3). Over a longer period (8-24 hours) the leaves from all 5 clones were completely consumed. In some instances even the twigs were eaten. In trial #3 all 16 animals actively investigated and browsed on the clonal material.

Table 3.—*Clonal preference based on three feeding trials with penned deer*

| Clone number | Trial 1 | Trial 2 | Trial 3 |
|---|---|---|---|
| 5325 | 1 | 1 | 1 |
| 5272 | 2 | 2 | 2 |
| 5332 | 3 | 3 | 3 |
| 5260 | 4 | 4 | 5 |
| 5262 | 5 | 5 | 4 |

Care must be taken in interpreting the results of this study since the natural browse in the 5-acre deer yard has long been depleted. It is possible that browse material consumed in this study might be ignored in the field.

Table 2.—*Leaves remaining after various periods of elapsed time in deer pen*

| Clone number | Leaves remaining | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Trial 1 September 14, 1978 11:00 AM | | | | | | | Trial 2 September 15, 1978 4:00 PM | | | | | | | Trial 3 September 16, 1978 7:00 AM | | | | | | |
| | Hours elapsed | | | | | | | Hours elapsed | | | | | | | Hours elapsed | | | | | | |
| | ½ | 1 | 1½ | 2 | 2½ | 3 | 24 | ½ | 1 | 1½ | 2 | 2½ | 3 | 15 | ½ | 1 | 1½ | 2 | 2½ | 3 | 8 |
| | Number | | | | | | | Number | | | | | | | Number | | | | | | |
| 5260 | 82 | 71 | 71 | 56 | 41 | 37 | 0 | 84 | 80 | 80 | 61 | 53 | 53 | 0 | 33 | 27 | 11 | 11 | Traces | 0 | 0 |
| 5262 | 91 | 80 | 51 | 51 | 51 | 46 | 0 | 98 | 98 | 98 | 94 | 94 | 94 | 0 | 50 | 21 | 0 | 0 | 0 | 0 | 0 |
| 5272 | 46 | 31 | 11 | 0 | 0 | 0 | 0 | 98 | 71 | 71 | 43 | 43 | 10 | 0 | Eaten in 11 minutes | | | | | | 0 |
| 5325 | 20 | 7 | 0 | 0 | 0 | 0 | 0 | 18 | Traces | | Traces | | Traces | 0 | Eaten in 6 minutes | | | | | | 0 |
| 5332 | 84 | 70 | 64 | 31 | 31 | 31 | 0 | 90 | 86 | 86 | 67 | 51 | 46 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 |



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